THURSDAY, SEPTEMBER 12, 1901.

CARNAC AND STONEHENGE.

(1) *The French Stonehenge: an Account of the Principal Megalithic Remains in the Morbihan Archipelago.* By T. Cato Worsfold, F.R.Hist.S., F.R.S.L. Pp. 44. (London: Bemrose and Sons, Ltd. No date.) Price 5*s.*

(2) *A Sentimental and Practical Guide to Amesbury and Stonehenge.* By Lady Antrobus. (Salisbury: Brown and Co., 1901.)

MR. WORSFOLD'S book, though the reason for its title, "Stonehenge," is not very apparent, gives a popular and interesting account of the wonderful megalithic works at Carnac, in Brittany. Those who desire to enter more deeply into the subject should consult "Les Alignments de Kermario," par James Miln Rennes (1881), a work which our author appears to have well studied, and "L'Astronomie Préhistorique," par F. Gaillard, dans la *Révue Mensuelle Internationale des Sciences Populaires* (15 Rue Lebrun, Paris).

Let us, however, accompany Mr. Worsfold in the slighter introduction which he gives. A lucid glance at the inhabitants of the district, which, with the peninsula of Quiberon, is part of the Department of Morbihan, is given in "Cæsar's Commentaries" (De Bello Gallico, iii. 3), describing his naval engagement with the Veneti, who seem to have been assisted by allies from Britain (Cæs., iv. 20). From this account it appears that the Veneti had evidently attained to no inconsiderable height of civilisation, as particularly shown in the construction and fittings of their ships. Our author adds the tradition that after their defeat the Veneti sailed away to the Mediterranean and founded the city of Venice. A description of Carnac follows.

The three great heads into which the megalithic remains may be divided are:—

(*a*) Menhirs, or single stones, in most cases upright, but occasionally overthrown. These, when they appear in circles, are called cromlechs.

(*b*) Dolmens, from Dol Men, a table stone consisting of a flat stone resting on two or more upright stones having subdivisions, "Dolmen a galérie" having an entrance way of sufficient height, and "Galgal," similar but smaller, "Dolmen à l'allée couverte" and "Kist-vaen," which should, indeed, be under another head, meaning stone coffins hewn out of one block.

(*c*) Alignments, which are lines of menhirs. These form the chief objects near Carnac. The finest dolmens are near Locmariaquer, a village about eight miles distant.

A large and lofty tumulus near Carnac, named Mont St. Michel, from a church so dedicated, which has been built upon it, has yielded on excavation many prehistoric relics; and near its base was found the remains of a Roman villa with Celtic or pre-Celtic relics arranged on shelves, showing that its Roman owner had been somewhat of an antiquarian. The name of the place is supposed to be derived from this tumulus or *cairn*. That this tumulus may have been connected originally with sun worship may be argued from the fact that the annual custom prevails of lighting a large bonfire on its summit at the time of the summer solstice, which is the signal for others to be kindled on similar prominent eminences for a distance of twenty or thirty miles round. These fires are called in the local patois "Tan Heol," and also by a later use, Tan St. Jean.

This practice prevailed also in Scotland under the name of Bel Tan, or Baal's Fire; the synonym for summer used by Sir Walter Scott in the "Lady of the Lake":—

> Ours is no sapling chance-sown by the fountain
> Blooming at Beltane in winter to fade.

The alignments of Carnac consist, firstly, of those known as "Le Menec," signifying *the place of stones*, or, by another interpretation, *the place of remembrance*. The next series are those of Kermario, or *the place of the dead*. The third series, Kerlescant, or *the place of burning*.

The alignments of Menec consist of eleven lines of menhirs, terminating towards the west in a cromlech, and notwithstanding that great numbers have been converted to other uses, still contain 1169 menhirs; some, however, do not exceed 18 inches in height, but others reach as much as 18 feet.

The alignments of Kermario in ten lines contain 989 menhirs. That of Kerlescant, which beginning with eleven rows is afterwards increased to thirteen, contains altogether 579 stones and thirty-nine in its cromlech, with some additional stones in a northerly direction. Each of these three alignments has its own orientation, and the large menhirs at the ends are supposed by some persons to mark the rising and setting of the sun, in some cases at the equinoxes and others at the solstices. In connection with this it is interesting to state that at Kerlescant the winter solstice is celebrated by a holiday, whilst Menec greets the summer solstice, and Kermario the equinoxes, with festivals. It appears that the adoration paid these stones remained strongly rooted for many centuries and yielded very slowly to Christianity. This is shown by the constant denunciations made against it in different countries. In the church history of Brittany in particular, the *Cultus Lapidum* was denounced in 658 A.D., and a decree was passed at Nantes that trees so worshipped should be torn up and burnt and stones cast down and hidden from those who sought to do them reverence. Indeed, the author quotes M. de Fréminville, who writes:—

> "On sait qu'au dix-septième siècle même l'idolâtrie était encore exercée dans l'isle d'Ouessant [*i.e.* Ushant] et dans plusieurs paroisses de l'évêché de Vannes." [Vannes is about twenty miles distant from Carnac.]

In connection with this it is stated that some years since a large number of these menhirs were lying prone on the ground exactly due north and south, and were subsequently restored to their original position by the French Government. These stones may have been overturned in compliance with the decree of 658 A.D. above referred to. Several of the loftier menhirs have been surmounted by crosses of stone or iron, so as to convert, at any rate, the appearance of veneration into an orthodox channel.

After a digression upon Stonehenge, presumably for the purpose of justifying the title of the book, but in which no very apparent analogy is pointed out, he cites Avebury, where it may be admitted that the character of the stones, but not the arrangement, is more suited for comparison. He returns to Morbihan and describes the monuments near Locmariaquer, and especially the "Dolmen des Marchands," about two miles from the village, where a granite block about 36 feet in length is poised in a horizontal position upon three others 16 feet high, the under surface being carved in a curious manner with undulating grooves and with hieroglyphics of axes interspersed. Then follows the account of a huge stone now lying on the ground which has been broken into five pieces, but presumably was once erect and stood 78 eet in height and 13 feet across at the base, weighing about 340 tons.[1]

Near Locmariaquer in the estuary named Riviere d'Auray, there is an island named Gavr' Inis, or Goat Island, which contains a good specimen of the kind of dolmen which has been named "Galgal."

> "At the entrance our attention is at once arrested by the profusion of tracery which covers the walls. From the entrance to the wall facing us the distance is between 50 and 60 feet. The square chamber to which the gallery leads is composed of two huge slabs, the sides of the room and gallery being composed of upright stones, about a dozen on each side. The mystic lines and hieroglyphics similar to those above mentioned appear to have a decorative character."

An interesting feature of Gavr' Inis is its remarkable resemblance to the New Grange tumulus at Meath. In construction there is again a strong resemblance to Mæs-Howe, in the island of Orkney. There is also some resemblance in smaller details.

In excavations near Carnac and Locmariaquer, many curious prehistoric implements and ornaments have been discovered, which are preserved in the Miln museum at Carnac and in a museum at Vannes.

The main purpose of Lady Antrobus' sentimental and practical guide is to give a popular account of the interesting objects in the neighbourhood of Stonehenge, and especially of Stonehenge itself, and in this it succeeds admirably. The sentimental part is very well worth reading, but it is more in accordance with the intention of this article to proceed to the practical part, which is a very useful *résumé* of the chief authorities on the subject, and it is illustrated by some well-chosen photographs. The account begins with a translation from Diodorus Siculus, who lived about B.C. 8.

Hecatæus, the Milesian (who lived about 500 years B.C.), gives us the following story :—

> "Over against Gaul, in the great ocean stream, is an island not less in extent than Sicily, stretching towards the North. The inhabitants are called Hyperboreans. It is said that the soil is very rich and fruitful, and the climate so favourable that there are two harvests in every year. There is in this island a magnificent temple to Apollo, circular in form, and adorned with many splendid offerings; and there is also a city sacred to Apollo, inhabited principally by harpers who in his temple sing sacred verses to the God. . . . Once in nineteen years (and this period is what we call the great year) they say that their God visits the island, and from the Vernal Equinox to the rising of the Pleiades (about May 1) all the night through expresses his satisfaction by dances and by playing on the harp."

The first author who is considered to make unmistakable mention of Stonehenge is Henry of Huntingdon (twelfth century). He speaks of it as the second wonder in England, and calls it Stanenges. Geoffry of Monmouth (A.D. 1138) wrote of it about the same time, as did his contemporary, Giraldus Cambrensis.

Langtoft, in his chronicle, tells a curious story :—

> "A wonder wit of Wiltshire, rambling to Rome to gaze at antiquities, and there screwing himself into the company of antiquarians, they intreated him to illustrate to them that famous monument in his country called 'Stonage.' His answer was that he had never seen it, whereupon they kicked him out of doors and bade him go home and see Stonehenge."

Pepys says the stones are "as prodigious as any tales I have ever heard of them, and worth going this journey to see."

Mr. E. S. Maskelyne, in a lecture read 1897, called "The Age and Purpose of Stonehenge," fixes its date as 900 or 1000 B.C. (a date which seems sufficiently nearly confirmed by recent researches). Mr. Maskelyne proceeds :—

> "I should like to add some reasons for my belief that Stonehenge was built by the Phœnicians. In the first place I cannot think of any other people that could either have designed or executed such a monument, which required both science for its conception and skill for its erection. The Phœnicians, with their familiarity with masts, cordage and pulleys could easily lift the imposts, and they must have known how the Egyptians raised masses of stone many times heavier.
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> "The trilithon standing clear seems to have had some fascination for the Phœnicians. They are found still standing in Tripoli in Libya, and specimens exist on the continent of Europe in Normandy and Brittany. One may be seen in the island of Ushant and another in St. Nazaire on the probable route they adopted for the carriage of tin. . . .
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> "About B.C. 400 the Greeks supplanted the Phœnicians in their trade with Britain. . . . Stonehenge must have been a noted temple, and I cannot doubt that Hecatæus did allude to it in the sixth century B.C. as the round temple of Apollo in the land of the Hyperboreans.
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> "As to the kinds of stone employed in the building, the whole of the outer circle and the four stones beyond that circle are undoubtedly 'Sarsen,' which are boulders left by the ice-sheet of the Glacial period on the Wiltshire Downs. In the inner circle are four stones of *whinstone*, an impure ironstone; the remainder are syenite, commonly called bluestones, and identical with those found on Dartmoor and many parts of Devon and Cornwall, the *altar-stone* being a kind of coarse blue marble, perhaps from Derbyshire."

Stonehenge stands about 440 feet above the sea-level. The outer circle measures 308 (330 externally). These stones formerly stood 14 feet above the surface of the ground. The uprights are unhewn, but have knobs or tenons on the top which fitted into mortise-holes on the underside of the horizontal stones, which were roughly squared.

Within this peristyle was the inner circle, composed mainly of unhewn syenite obeliscs, and then the great ellipse, formed of five (but some think seven) huge trilithons, which rose progressively in height from N.E. to S.W., the loftiest uprights being 25 feet above the ground. Of these remain two perfect trilithons and two of the upright stones, but of these one is much inclined from the vertical. The fall of one of the trilithons took place in A.D. 1620, owing to some injudicious excavations of the then Duke of Buckingham. Another fell in 1797, owing to the action of the weather upon its foundations.

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[1] 240 in the text, but from other accounts this must be an error.

The entrance to Stonehenge faced the N.E., and the road to it, or "Via Sacra," called the Avenue, can be traced by banks of earth which fall into those of the circumscribing circle of the earth bank which surrounds the whole structure, and which has a diameter of about 200 feet.

Prof. W. M. Flinders Petrie's account is cited as arriving at a date very much later than that given by Mr. Maskelyne, viz. as between 500 and 900 A.D. !

Lady Antrobus' book concludes with an account of the objects met with on the picturesque road which leads from Amesbury to Salisbury along the banks of the Avon.

OUR BOOK SHELF.

Polyphem ein Gorilla. By Dr. Th. Zell. Pp. 184. (Berlin: W. Junk, 1901.) Price Mk. 2.50.

A BOOK of nearly two hundred octavo pages of close print, discussing the subject above mentioned, may, without exaggeration, be termed exhaustive. It should be at once added, however, that in his preface the author refers expressly to those of the fifteen chapters (viz. Nos. xiii and xiv) which contain the essential arguments in support of his views. Otherwise the reader should be prepared to find himself involved in the consideration of the behaviour of animals in relation to changes in the weather, or engaged in the study of the relative keenness of the special senses of the walrus. The effects of meteorological changes on animals are discussed in reference to the story, not of Polyphemus, but of Proteus, in the course of a general disquisition on the interpretation of Homeric myths, while the subject of the special senses appears in subtle connection with important questions raised by the peculiar cyclopian eye of Polyphemus. The author's enthusiasm and his desire to examine all sides of the question have led him to burden his work with a large amount of detail, which could have been largely avoided, without diminishing the value of the book, by the substitution of reference for quotation *in extenso.*

The contributions to Homeric literature consist, firstly, in the exposition of the view expressed in the title of the book, viz., that the story of Polyphemus is not, as Grimm and others believe, a mystic account of the strife of the elements or a solar myth, but rather the reminiscence of an encounter of early civilised man with a pre-human ancestor. To this ancestor Dr. Zell prefers to refer as a "gorilla-mensch," reminding one of Winwood Reade's implied suggestion that Caliban was a gorilla.

In the second place, Dr. Zell suggests that the term cyclopian indicates that the person or animal so designated had simply eyes of rounded appearance and was not necessarily the possessor of a single median organ of sight.

While agreeing with Dr. Zell that the explanation of the story of Polyphemus is to be sought in the actual adventures of early voyagers, rather than in an appeal to the unaided inventive faculty of a poet, it is thought that the term "gorilla-mensch," as well as the title of the book, are distinctly unfortunate, as tending to revive the now discarded view that the particular ape in question should be regarded as figuring in the line of human ancestry. If the large gorilla mentioned on p. 112 is that which has been recently represented in certain publications in England and Germany, it is thought that Dr. Zell has been misled; for the attitude of the specimen referred to is not warranted by the structural anatomy of the gorilla.

With regard to the explanation of the term κύκλωψ, it must be admitted that this is a subject for inquiry on the part of philologists rather than students of natural science. Two remarks may be made here. The ordinarily accepted significance is one of very ancient standing. At the same time it is far more essential to Grimm's explanation than to that of Dr. Zell. W. L. H. D.

The Evolution of Consciousness. By Leonard Hall, M.A. Pp. 152. (London: Williams and Norgate, 1901.) Price 3*s.* net.

THIS is one of those well-meaning but futile books which it is almost impossible to criticise. To write a history of the evolution of consciousness an author should be thoroughly well informed of the latest results in both psychology and physiology. Mr. Hall seems to depend for his knowledge of the two sciences principally on the late J. S. Mill, with an infusion of Mr. Herbert Spencer. His account of psychological development is, no doubt unconsciously, entirely at variance with the results which have been won in recent years by careful experimentation, especially in the important domains of animal psychology, the analysis of spatial perception and the investigation of the processes by which meaning is acquired. The physiological explanations in which the writer indulges most frequently amount to nothing more than the reiteration of the blessed words "integration" and "differentiation." His grand thesis is that human consciousness is the property of a dominant cell or monad, but he seems not to be aware of the practical dethronement of the cell by the neuron as the unit of nervous action, nor does he offer any valid reason for his belief that the sub-cortical and medullary cells have a minor consciousness of their own. The actual "transference of consciousness" from one cell to another of which he talks freely is, of course, nonsense. Like most writers whose knowledge of psychology is of the same kind as his own, he is a very dogmatic and determined adherent of the merely mechanical theory of human action.

The Self-Educator in Chemistry. By James Knight, M.A., B.Sc., F.C.S., F.G.S., F.E.I.S. Edited by John Adams, M.A., B.Sc. Pp. xxiv + 162. (London: Hodder and Stoughton, 1901.) Price 2*s.* 6*d.*

THE intention and hope of the series to which this book belongs is that "the most isolated student will be able, without other aid, to ground himself in the various subjects dealt with." It is much to be doubted whether Mr. Knight's book will achieve any such purpose. Grounding in a subject is usually held to mean the laying down of substantial foundations, whereas this book is calculated rather to give superficial and miscellaneous information. It will give the reader no idea of the methods by which the principles of chemistry have been established, how chemical knowledge grows, or how chemists work and think. Within the first four pages the reader is introduced to atoms and molecules, graphic formulæ and the mysteries of the nascent state, whilst on the fifth he is told, "the statement that the atomic weight of oxygen is 16, means that a cubic inch, say, of oxygen is 16 times as heavy as a cubic inch of hydrogen. The atomic weight of substances like copper and carbon, which are not gases at all, are got in a more round-about fashion."

The most that can be said for the book is that it aims at showing chemistry in its relation to the things and phenomena of daily life. But it is neither thorough nor accurate, and doubts must arise as to the claims of a populariser who, besides propounding theory in the manner illustrated above, gets so far wrong in matters of fact as, for example, to state (p. 42) that hydrogen is liberated when steam is passed over red-hot copper, and that water gas and producer gas have the same composition. A. S.